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ABSTRACT

This document reports on a national research needs assessment study which resulted in the identification of research priorities for the National Research Center on the Gifted and Talented (NRC/GT) through the year 2000. The report addresses: the scope, purpose, and mission of NRC/GT; a rationale for such research, noting six problem areas in program development resulting from limitations of previous research; the design of the needs assessment study; and the needs assessment methodology, which involved surveying 13,749 individuals including teachers of the gifted, representatives of collaborative school districts, and members of state research advisory councils. Analysis of the 5,074 returned surveys is reported, including a ranking of 21 recommendations for research. Results suggest a need for future studies in two major categories: (1) the effectiveness of current programs, strategies, and practices; and (2) the cognitive, affective, and motivational needs of students. Specific questions related to each category are listed. Abstracts of 18 current studies for the NRC/GT in these areas are presented. A final section presents the NRC/GT's dissemination model to facilitate the dissemination of research results. (Contains 25 references.) (DB)

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THE NATIONAL RESEARCH CENTER ON THE GIFTED AND TALENTED

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THE NATIONAL RESEARCH CENTER ON THE GIFTED AND TALENTED

The National Research Center on the Gifted and Talented (NRC/GT) is funded under the Jacob K. Javits Gifted and Talented Students Education Act. Office of Educational Research and Improvement, United States Department of Education.

The directorate of the NRC/GT serves as the administrative unit and is located at The University of Connecticut

The participating universities include the University of Georgia, the University of Virginia, and Yale University, as well as a research unit of The University of Connecticut.

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Table of Contents

What is The National Research Center on the Gifted and Talented (NRC/GT)? 1

Scope, Purpose, and Mission 1

Rationale: Research That Makes a Difference 3

Lessons From the Past 3

Addressing the Future 5

Overview of the National Research Needs Assessment Study 9

Needs Assessment Study 9

The Advisory Process 11

Methodology 13

Sample Population 13

The Survey Instrument 14

Findings 17

Data Analysis 17

Research Needs Related to Special Populations 19

Research Needs Related to Program Components 21

Data Synthesis 21

Table of Contents *(continued)*

Implications for Further Research 25

Research Needs 25

Effectiveness of Current Programs, Strategies, and Practices 25

Cognitive, Affective, and Motivational Factors 27

NRC/GT Research Agenda 28

Initial Research Studies 34

Translating Research Findings Into Practice 36

Summary 38

References 39

Appendices 43

Table of Contents *(continued)*

List of Appendices

A.	State Research Advisory Council Worksheet	44
B.	Research Needs Assessment Survey	45
C.	Effect Sizes of Special Population Items by Sampling Group	47
D.	Ranked Means for Special Population by Professional Role	48
E.	Ranked Means for School Setting Groups: Special Populations	49
F.	Effect Sizes of Program Components Items by Sampling Group	50
G.	Ranked Means for Program Components by Professional Role	51
H.	Ranked Means for School Setting Groups: Program Components	52

List of Tables

1.	Research Needs Assessment Sample	13
2.	Composition of Sampling Groups by Professional Role	18
3.	Ranked Means for Sampling Groups: Special Populations	20
4.	Ranked Means for Sampling Groups: Program Components	22
5.	Recommendations for Research	23
6.	Coverage of NRCAC Recommendations	29

Table of Contents *(continued)*

List of Figures

1.	The National Research Center on the Gifted and Talented	2
2.	The Path of the Research Needs Assessment Data Analysis	10
3.	Organizational Framework for Research on the Gifted and Talented	24
4.	The National Research Center on the Gifted and Talented Dissemination Model	37

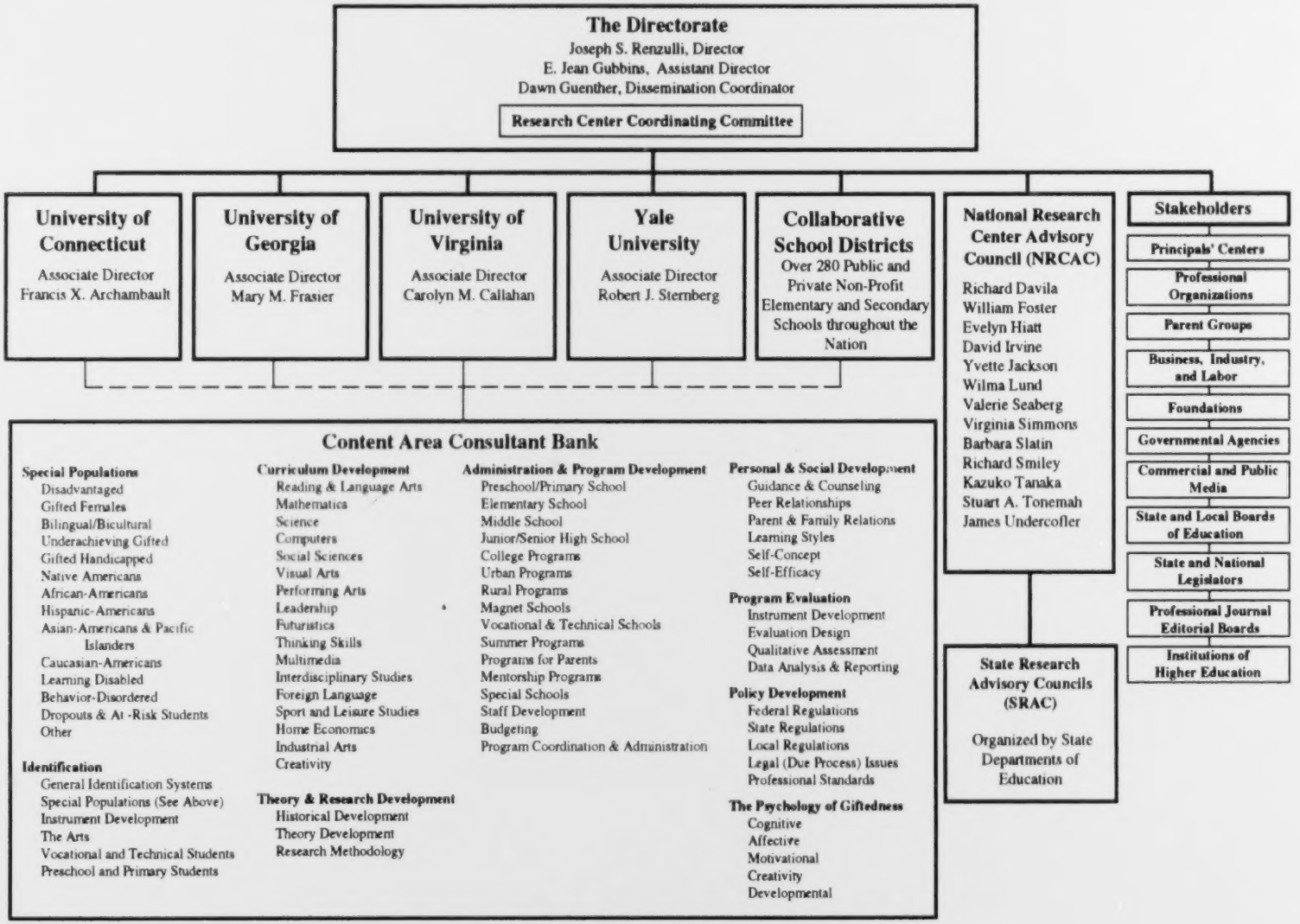
What is The National Research Center on the Gifted and Talented (NRC/GT)?

Scope, Purpose, and Mission

The National Research Center on the Gifted and Talented (NRC/GT) is a collaborative effort of The University of Connecticut, The University of Georgia, The University of Virginia, Yale University, 54 state and territorial departments of education, over 280 public and private schools, over 135 content area consultants, and stakeholders representing professional organizations, parent groups, and businesses. The organizational chart of the NRC/GT is presented in Figure 1. The funding for the Research Center has been provided by the Office of Educational Research and Improvement, United States Department of Education, under the Jacob K. Javits Gifted and Talented Students Education Act of 1988.

The mission of The National Research Center on the Gifted and Talented is to plan and conduct theory-driven quantitative and qualitative research that is problem-based, practice-relevant, and consumer-oriented. Our mission includes a broad-based dissemination function, and the formation of a nationwide cooperative of researchers, practitioners, policy makers, and other persons and groups that have a stake in the psychology and education of high-potential youth from preschool through post-secondary levels. Emphasis is placed on identifying the research needs of economically disadvantaged youth, individuals of limited English proficiency, individuals with handicaps, and other special populations that traditionally have been underserved in programs for gifted and talented students. The Center also serves as a vehicle for providing the kinds of intellectual leadership necessary for the further stimulation, advancement and improvement of theory, research, and practice in the field. In this regard, the Center serves as an integrated forum for scholars and practitioners to come together and to pool their resources. Moreover, it welcomes contributions from, and output to, scholars in cognate fields, in order to enhance communication and interchange between scholars in multiple disciplines whose interests relate to giftedness.

Figure 1. The National Research Center on the Gifted and Talented



Rationale: Research That Makes a Difference

Lessons From the Past

Research dealing with education of the gifted and talented has a strong history and tradition, dating back to the early work of luminaries such as Alfred Binét, Sir Francis Galton, Lewis Terman, and Leta Hollingworth. This tradition has helped to establish the bedrock of our field, and it has continued to grow up to and including present day research activities. But the field of education for the gifted and talented, like any other field in the social sciences, must continually examine its historical roots, and look for ways to overcome problems that traditionally limit the extent and impact of research on the process of educational improvement.

Among the many causes of limited progress in program development, six problem areas are particularly prominent. First and foremost among these problem areas is that the majority of research studies in the field have focused on trait and status characteristics rather than intervention studies and hypothesis-testing research grounded in specific theories and models that are designed to guide identification and programming practices. We know a good deal about whether or not gifted students are first born, or have fathers with college degrees and professional backgrounds. But we know very little about the effects of interventions based on theoretically sound identification and programming models. Related to this problem is professional literature that is over-represented by non-research based journalism, stale platitudes, and truisms that have been repeated over and over.

A second and related problem area is the way in which research findings are translated into classroom practices. A number of researchers have discussed the ways in which research does or does not influence practice (Cooley, 1983; Krathwohl, 1977; McNergney, 1990; Tuthill & Ashton, 1983); and generally, it appears that teachers make changes in their instructional practices based on personal beliefs and specific experiences (Richardson, 1990), rather than research findings. Even in cases where research results are particularly strong, their influence is relatively

weak when compared to the more powerful influences of the work place. All too frequently teachers adopt the untested practices of their experienced colleagues, or they fall prey to the "quick fix" solutions offered by charismatic, fast-talking conference speakers and what seems to be an almost endless multiplicity of packaged activities and how-to books. While some of these activities undoubtedly have great value as well as appeal, the continued growth and maturity of our field requires that we begin to examine in a more scientific way the impact of activities being recommended by persons who develop and market methods, models, and identification procedures.

A third area that has not been adequately addressed is the interaction between research studies and public policies. Little, if any, formal policy analysis has been conducted in the area of gifted education or on various proposals or regulations governing the field. Unexamined guidelines for identification, mandated hours and minutes that youngsters must spend in special services, as well as standards for teacher certification have been applied in a well-meaning, but sometimes capricious, arbitrary, or political fashion. In most cases, there is not a single fragment of research evidence to support one regulation or another. The time is overdue for examining these important policy issues because of the many concerns raised by practitioners in the field about guidelines and regulations under which they are forced to operate in their respective states and districts.

A fourth area of limitation in previous research is an over-dependence on test scores for determining the impact of educational interventions. Giftedness and the development of gifted behaviors is a complex process that involves the assessment of a wide range of variables that are much more complicated then merely examining score increases on standardized achievement and aptitude tests, most of which have been developed and normed on general populations. We need to employ a broader range of research designs, and we must put to rest the discrimination against qualitative research and case study methods. The very nature of giftedness, and the complexity of factors that contributes to high levels of creative productivity cannot always be examined through traditional quantitative methods. Expanding our designs will help us to examine phenomenon that cannot be easily measured by overcoming a problem that Eisner has succinctly described:

> ...[S]cientific studies in education are more often defined by the form of research one has learned to use than by the substantive problems one believes to be significant. Becoming familiar with correlation procedures too often leads simply to questions about what one can correlate; the existence of statistically reliable achievement tests too often leads to a conception of achievement that is educationally eviscerated. Our tools, as useful as they might be initially, often become our masters. (Eisner, 1975, p. 9)

But policy makers, and even members of the research community, often view qualitative studies as "soft" or imprecise, and are therefore less willing to give credibility to what they consider to be "subjective data." The nature of the questions being raised and the variables being examined should determine the research design. As Campbell (1982) has pointed out, "It is better to have imprecise answers to the right questions than precise answers to the wrong questions." We need to expand greatly the range of criterion measures that are used to

determine growth in process skills, motivation, self-directed learning, the development of creative products, and a broad range of affective processes that the research literature clearly indicates are important manifestations of the development of gifted behaviors. Further, the assessment of interventions designed to promote maximum academic, social, or personal development requires the construction of creative assessment tools and the effective dissemination of technical information about currently available instruments of high quality, however limited this supply may be.

A fifth problem area undoubtedly represents the most serious gap in research on the gifted and talented. In spite of considerable rhetoric about the needs of economically disadvantaged students, individuals of limited English proficiency, underachievers, and individuals with handicaps, very few data based studies have been carried out with these groups. Similarly, very little attention has been paid by researchers to students who are talented in the arts or to students enrolled in vocational and technical schools, as opposed to traditional comprehensive secondary schools. As our view of giftedness expands, so also must we take into consideration these various groups that have historically been under-represented in gifted programs. We must also expand our studies into areas such as the arts that have been under-researched because of difficulties in "fitting" artistic assessment into test-driven research designs.

Underlying all of the above areas is a sixth and final concern that might best be described as the gifted student's relationship to the regular curriculum. Although both students and curricula vary in many ways, the mismatch between gifted youth and the curriculum they are forced to study most of the time is nothing short of an American tragedy. The human waste in terms of both student and faculty time is inestimable, and this waste can be found in both rich schools and poor, and even in schools that have well established programs for the gifted. It is this mismatch that brings most bright youngsters to our attention in the first place; and yet very few studies have attempted to examine in a systematic manner intervention techniques that can be used to get the regular curriculum "off the backs" of students who have already mastered (or could quickly and easily master) regular curricular material. Implicit in this major concern about curricular mismatch is the related issue of making time available for more productive use of bright young minds.

History teaches us many important lessons, and if we are to avoid some of the problems of the past, and make the most efficient use of our always limited resources in future research activities, then we must carefully examine both the richness and the limitations of research in our field and use this information to sharpen our decision making in future research activities.

Addressing the Future

One of the longest and strongest controversies in the social sciences, and especially within the field of education, is the role that research has played in guiding educational practices and in the formulation of educational policy. Related to this controversy is an equally longstanding history of adverse relations between researchers and practitioners. A good deal of this controversy is centered around two problems—the relevancy of educational research and the amount of time that it takes for research findings to have an impact on educational practice and

policy. Even in those cases where well respected and highly relevant research studies can be found, there is frequently a long delay between the establishment of research findings and the translation of these findings into practices that have an impact in classrooms. Some people have estimated the "theory-into-practice-gap" to be as large as 20 years! The National Research Center on the Gifted and Talented has made a commitment to attack the relevancy issue and the theory-into-practice-gap head on! To do this we analyzed problems contributing to these two road blocks, and then we developed a strategy that holds promise for overcoming these problems.

The relevancy problem is based on a long history of limited communication and collaboration between researchers and practitioners. Practicing educators and researchers bring different perspectives to the daily challenges of their jobs and to the larger challenge of improving the quality of education. Research in the field of gifted education, and educational research in general, has often been initiated because of the interest of individual researchers and graduate students rather than practitioners. Teachers tend to disparage this university initiated research and become impatient with researchers' unwillingness to provide schools with practical solutions to their problems and with new and improved ways to serve young people. Teachers also find research writing to be too technical and jargon-bound, and they also believe that in most cases, the topics that researchers deal with are irrelevant to the problems and daily concerns encountered in schools and classrooms. Over the years, research needs in the field have been examined through the use of surveys and other techniques (Cox, Daniel, & Boston, 1985; Gallagher, 1981, 1988, 1991); however, these needs have mainly been determined by commissions composed of policy makers and leaders in the field, and by other researchers rather than persons who are in direct contact with gifted students.

Researchers, on the other hand, strive to build theories and develop elegant research designs that will gain respect in the research community and in the journals that are read almost exclusively by other researchers. Researchers often find the world of the classroom to be too cluttered with "contaminating variables," so they frequently choose to work with restricted segments of educational problems. Even when researchers conduct their studies in classrooms as opposed to the laboratory, they often become impatient with teacher concerns that are frequently viewed as "messy practical problems." And when applied research studies focus on practical problems, there is a tendency for administrators to adopt selectively only those portions of the findings that support their own views, to freely interpret these findings, and to impose generalizations on teachers and programs that don't easily translate to particular teaching/learning situations, or to the daily problems of instruction.

An effort to address this disharmony between practitioners and researchers was the major focus of the National Research Needs Assessment Study. The results of this study have become the driving force in determining future research activities of the Center, and hopefully, these results will also play a role in determining future research activities in the field at large. The Needs Assessment Study was based on four simple and yet very compelling assumptions:

1. Teachers and other educational practitioners possess important knowledge about students' needs, instructional needs, and the classroom milieu that researchers often do not understand.

2. Researchers are better able to provide systematic approaches to examining educational problems and analyzing and interpreting data than can ordinarily be carried out by educational practitioners.

3. The best type of research so far as educational improvement is concerned will result from collaborative efforts between researchers and practitioners at all stages of the research, implementation, and evaluation processes.

4. Research that results from such collaborative efforts is more likely to be adopted and to have an impact on the change process.

With these assumptions in mind, and in view of the historical problems surrounding research in the field, the NRC/GT developed a comprehensive plan for a National Research Needs Assessment that focused on educational programming for gifted and talented students. This plan is described in the sections that follow. The next sections of this report present the methodology and discuss the results of this Needs Assessment Study. The final section of the report presents implications for further research.

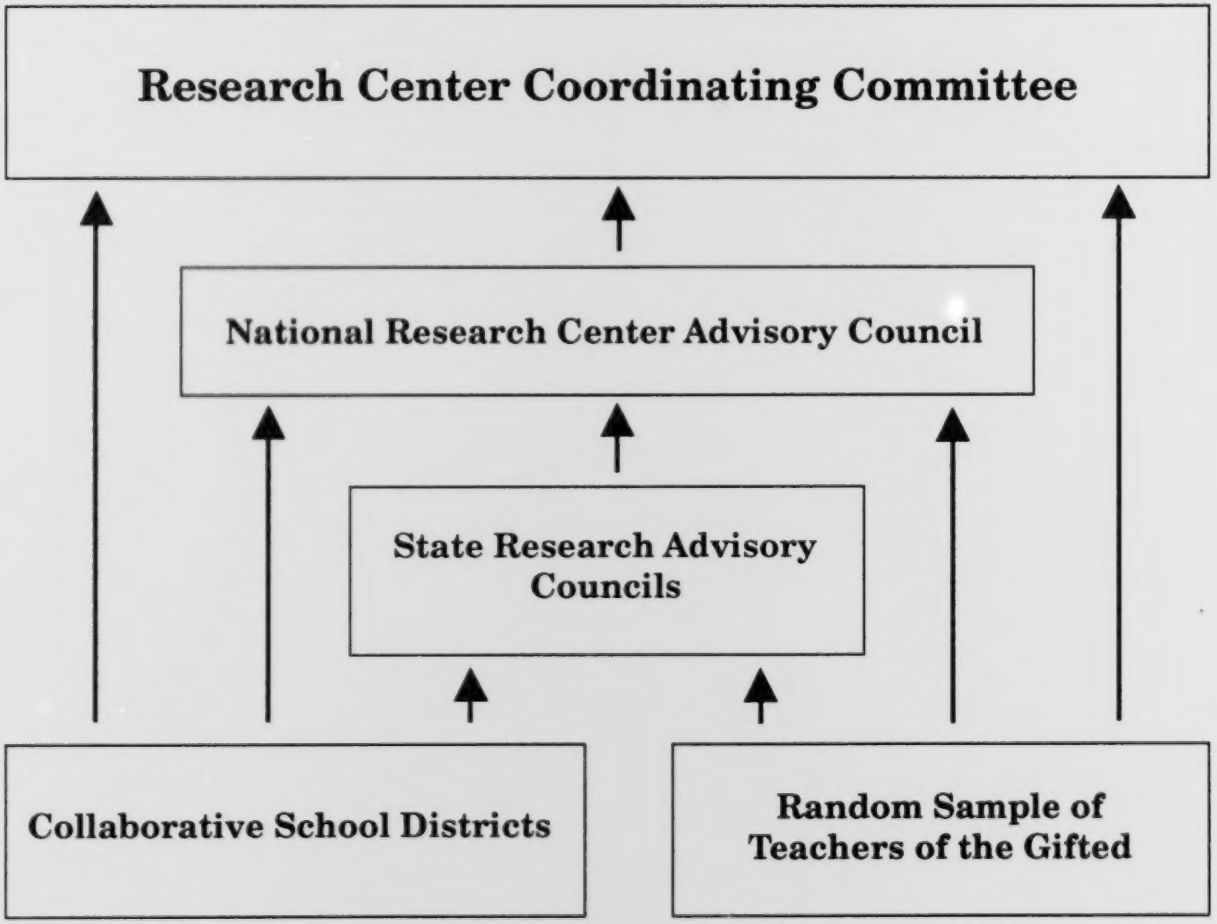
Overview of the National Research Needs Assessment Study

Needs Assessment Study

A major goal of The National Research Center on the Gifted and Talented was to conduct a National Research Needs Assessment Study that was designed (1) to provide a framework for research projects that would be carried out by the Center during subsequent years of operation, and (2) to provide guidance to the field in general about the most critical research needs in the decade ahead. The purpose of the study was to ensure that future research activities are responsive to the needs of the field as determined by broad-based grass roots input and a nationwide advisory system. A schematic representation of the Needs Assessment Study is presented in Figure 2; and in the sections that follow, we will present the rationale underlying the study, the sampling procedures and methodology, and the results and recommendations.

The needs assessment process consisted of three steps. The first step was the distribution of a survey to practitioners in gifted education throughout the United States, including the Random Sample, Collaborative School Districts, and the State Research Advisory Councils. This step included the formation of advisory councils in each state. The second step was the creation of the National Research Center Advisory Council. This group developed a list of national priorities based, in part, on the data provided by the State Advisory Councils and the Research Needs Assessment Survey. The final step in the process was the transmittal of needs assessment findings to the Research Center Coordinating Committee. This group used the data from the two previous steps to compile a research agenda. Figure 2 indicates the path of the data. The path ensured that individuals at each level could see the raw data and make interpretations on their own. This approach allowed many different perspectives to be brought to bear on the same data.

Figure 2. The Path of the Research Needs Assessment Data Analysis


Research Center Coordinating Committee
National Research Center Advisory Council
State Research Advisory Councils
Collaborative School Districts
Random Sample of Teachers of the Gifted

The Advisory Process

The Advisory process was initiated by asking state department of education consultants in the area of education for the gifted and talented to serve as organizers of State Research Advisory Councils (SRAC) in their respective states and territories. It was requested that the membership of the SRACs reflect all prime interest groups within the state or territory that have a stake in education of the gifted and talented. Emphasis was given to the importance of including persons who are interested in the following areas of concern: urban programs, the arts, rural programs, gifted women, ethnic minorities, handicapped gifted, preschool and primary students, private school students, vocational and technical students, and persons working with dropouts and at-risk students. Membership was also designed to reflect all levels of professional role (teachers of the gifted, classroom teachers, administrators, parents, students, and school board members).

A related step in the advisory process was the formation of the National Research Center Advisory Council (NRCAC). This group consists of five state department of education consultants (elected regionally by their constituents) and persons with expertise and experience in gifted education in the areas of the arts, vocational and technical education, urban education, and special educational efforts with ethnic minorities. Also involved as ex-officio members were representatives of the Office of Educational Research and Improvement, U.S. Department of Education, and the President of the Council of State Directors of Programs for the Gifted. The composition of this group is intended to reflect various regional and demographic interests, as well as interests in the special population groups listed above.

The third component of the advisory process is the Research Center Coordinating Committee. This group consists of the chair of the NRCAC, the director, assistant director, and associate directors of the Research Center, principal investigators of current research studies, and representatives of the Collaborative School Districts and the Content Area Consultant Bank. The advisory process was designed to provide a method of documenting research needs that reflect practitioner interests, the interests of state and leadership personnel in the area of education for the gifted and talented, and the persons who will be directly responsible for carrying out research studies. The goal of the advisory process was to ensure a long range research plan that will be responsive to the needs of practitioners and that will have direct impact on identification, classroom practices, program organization and administration, and policy development. An overriding concern in the advisory process was to develop a plan that included the broad range of at-risk populations that traditionally have had limited involvement in special education programs for gifted and talented students.

Following distribution of the Needs Assessment Survey, results were tabulated by state, region, school setting (urban, suburban, and rural), professional role, and sampling group. Tabulated data were forwarded to the SRACs, and these data served as background information for research needs assessment meetings that were held within the respective states and territories. The data were intended to give a broad perspective of research needs. However, SRACs were advised to focus on unique needs

and populations within their own states, and to pay special attention to the absolute priority of the Javits Act which focuses on at-risk populations. Each SRAC prepared a series of Advisory Council Worksheets that described the following components of recommended research projects: Topic, Specific Objective, Target Population, Need/Rationale, Extent of Need, and Impact on Underserved Populations (see Appendix A). Following preparation of the worksheets, each state group prioritized their recommendations, and the results were forwarded to the NRCAC.

Methodology

Sample Population

The sample population for the Research Needs Assessment Study consisted of a broad-based group of teachers, administrators, parents of gifted students, business persons, policy makers, and professional organization leaders. Both public and private schools were represented in the educators' and parents' groups. These groups, and the number of responses within categories, are presented in Table 1.

Table 1. Research Needs Assessment Sample

Sampling Group	n
Random Sample of Teachers of the Gifted	8,187
Collaborative School Districts	4,237
State Research Advisory Councils	1,325
Total Sample	13,749

The sample population for the educators' group was drawn primarily from two sources. The largest group of subjects was a random sample of teachers of the gifted and talented included on mailing lists compiled by an educational marketing company. In an effort to obtain data that reflected all regions of the country, this sample was stratified by state, and the sample size necessary for each state was calculated through a sampling formula (Krejice & Morgan, 1970, p. 607). This sample consisted of 8,187 teachers of the gifted from throughout the nation.

A second sample was drawn from 223 school districts and private schools that constituted the Collaborative School Districts (CSD) that were a part of the NRC/GT during 1990-91. The contact persons in each of these districts were asked to select randomly three teachers of the gifted, nine classroom teachers, three parents, and two building principals, using instructions that would help to ensure random selection. The CSDs, which represent approximately 3,500 schools and more than 3 million

students, included a cross section of socioeconomic levels, ethnic groups, and urban, suburban, and rural areas.

A third area from which the sample was drawn consisted of persons who were members of State Research Advisory Councils (SRACs) that were established in each state and territory. Members of these councils represented public and private schools, the arts, vocational and technical education, urban, suburban, and rural schools, gifted females, ethnic minorities, handicapped gifted students, preschool and primary students, at-risk students, and other special populations that exist with relatively high frequencies in the respective states and territories. The SRACs also included parents, business persons, and policy makers.

Additional data were collected through a direct mailing to members of the business community, policy makers, and professional organization leaders. Cross sections of all categories of respondents were obtained by distributing surveys at state and national conferences. Through cooperation with the National Association of Elementary School Principals and the National Association of Secondary School Principals, a direct mailing to a random sample of administrators helped us to gain a segment of data dealing with the opinions of practitioners at the administrative level.

The Survey Instrument

The instrument used in the Needs Assessment Study was designed to gather information on research needs in two general areas of concern within the field of education for the gifted and talented. The first area dealt with research needs among special populations; and the second area dealt with program components. Specific items within each of these two areas are listed in the sample copy of the Research Needs Assessment Survey that can be found in Appendix B.

The Special Populations included in Part I of the survey were determined from standard lists of at-risk groups within the general population. These populations include:

- Native-Americans
- African-Americans
- Hispanic-Americans
- Caucasian-Americans
- Asian-Americans/Pacific Islanders
- Economically Disadvantaged
- Behavior Disordered
- Gifted Females
- Bilingual/Bicultural/ESL
- Underachieving
- Physically Handicapped
- Dropouts & At-Risk
- Learning Disabled

The eleven Program Components included in Part II of the survey were determined through a review of the literature on educational programming for the gifted and talented. These components consist of the following:

- Patterns of Program Organization
- Grade Level
- Program Settings
- Personal & Social Development
- Program Evaluation
- Instructional Grouping
- Student Assessment
- Policy Development
- Psychological Aspects
- Identification
- Curriculum Development

Each program component was further subdivided according to specific factors related to each of the major components around which the instrument was developed. Respondents were asked to rate both the general components and subcomponents on a 7 point scale ranging from Unimportant to Highly Important. A final item requested that respondents circle the single category that they consider to be the most important so far as research needs are concerned. The same scale was used to obtain ratings about the research needs of special populations.

A third part of the survey instrument requested detailed information about the respondents' educational and ethnic background, professional or private sector role, and demographic information about the school district or municipality that they represented. The directions for the survey emphasized the importance of responding in terms of research needs rather than program development or financial needs; emphasis was also given to making discriminating choices between and within categories.

The Research Needs Assessment Survey went through several levels of instrument development and pilot testing. As indicated above, the initial instrument was developed by examining program components typically found in the literature on gifted education. These topics were assembled into various experimental formats (e.g., ranking vs. rating; national perspective vs. local perspective) and pilot editions were used to gain feedback on both item content and response format. Classroom teachers, teachers of the gifted, and experts in the area of education for the gifted and talented participated in the pilot studies and provided feedback that resulted in the preparation of the final form of the instrument. The final form was field tested with a group of 116 teachers who participated in a summer conference on education for the gifted and talented. The purpose of the final pilot was to estimate average time to complete the survey, to conduct a final check on clarity of directions, relevance of the demographic data requested, and the wording and clarity of specific items. A modified form of the instrument was developed for general administrative groups that included major Program Components only. Administrators who completed this form were selected at random from professional organization lists. Administrators who were part of the CSD sample and the SRAC sample completed the full-length instrument.

Findings

Data Analysis

The major data analysis procedure consisted of a repeated measures analysis of variance that was designed to determine whether statistically significant differences existed among the various sampling groups. This procedure was followed by procedures that were designed to determine whether or not differences existed between and among groups. The follow-up procedures consisted of analysis of variance (ANOVA), Scheffé tests, t tests with Bonferonni Inequity Tests, and effect size calculations. Effect size calculations were computed in order to compensate for the extremely large sample sizes. If there is even a small difference among groups, a large sample will lead to statistically different outcomes and subsequent recommendations that may not be justified on the basis of sample size alone. Also, statistical tests do not provide information about the strength of relationships (Cohen, 1990; Wolf, 1986). Effect size, which is the degree to which groups differ on measured variables, is the most effective way of examining results based on large sample sizes (Hinkle, Wiersma, & Jurs, 1988; Stevens, 1990). In this monograph, we have included mainly descriptive statistics. Effect size data of major findings are included in the appendices, and detailed analyses of all data are included in a comprehensive technical report of the needs assessment study (Reid, 1991).

A total of 5,074 surveys was returned from the sampling groups described earlier. Survey responses were received from all fifty states, the District of Columbia, and two U.S. Territories. Approximately three-quarters of the respondents were female and one-quarter was male. The percent responses by school setting were: urban (18%), suburban (45%), and rural (37%). Table 2 provides a description of the composition of sampling groups by professional role.

Table 2. Composition of Sampling Groups by Professional Role

Role	Random Sample	CSD	SRAC	Total
Teacher of the Gifted	1,532	372	51	1,955
Classroom Teacher	115	855	21	991
University Faculty	6	14	45	65
Building Principal	22	281	23	326
Central Office Administrator	13	222	46	281
State Department of Education	0	0	146	146
Regional Service Center	3	4	16	23
Coordinator of Gifted Program	294	86	55	435
Other	229	201	71	501
Missing Data	24	258	69	351
Total	2,238	2,293	543	5,074

Note: CSD = Collaborative School Districts; SRAC = State Research Advisory Council

Research Needs Related to Special Populations

The first of two major concerns in this study was to determine which of the several special populations included in the survey should be the major focus of future research activities. The ranked means for sampling groups and for all groups combined are presented in Table 3. Statistical analysis and follow-up procedures indicated that there were some statistically significant differences among sampling groups; however, these differences were undoubtedly a result of the large sample size. Follow-up analyses, using the procedures mentioned above, revealed that there were few, if any practical differences among the various groups that served as samples in this study (see Appendix C). Also included in Appendix D are the ranked means for special populations according to educational role (i.e., Teachers of the Gifted, Classroom Teachers, Building Principals, Central Office Administrators, and Program Coordinators). Finally, Appendix E contains ranked means for special populations according to the school setting selected by individual respondents (i.e., Urban, Suburban, Rural).

Examination of Table 3 on the ranked means for sampling groups by special populations reveals that the majority of respondents agreed that Underachievement, Gifted Females, Economically Disadvantaged Students, and Dropouts and At-Risk Students were major populations upon whom future research efforts should focus. The top four items are the same for the total sample, as well as each of the three sampling groups. It should be noted that the groups listed in Table 3 are not necessarily mutually exclusive. In other words, some of the populations that were categorized in the survey by demographic and ethnic background are also represented in the top four groups that resulted from the ratings for all categories. This finding indicates a preference on the parts of respondents to place the major focus of new research initiatives on factors that cut across ethnic groups rather than on the ethnic groups themselves.

In the technical report by Reid (1991), multiple data analyses were completed for the three groups: Random Sample, Collaborative School Districts, and State Research Advisory Councils. The analyses are too extensive to describe in this document. The following are just some examples of the statistical findings. When the special population responses were analyzed according to professional role for the three sampling groups, there were only statistical differences within the Collaborative School Districts. The follow-up procedures narrowed these differences to a few items that had significant differences on the *t* tests. The effect sizes for these few items were small, according to the standard provided by Cohen (1988). The repeated measures ANOVA did not find significant differences among the groups within the SRACs (see Reid, 1991).

The repeated measures ANOVA found a significant main effect for school setting in the Random Sample and in the Collaborative School Districts. However, significant differences were not found among the school settings in the State Research Advisory Councils. In the Random Sample, large practical differences were found between Urban and Rural responses on African-Americans with medium effect sizes on Hispanic-Americans, and English as a Second Language. In the CSDs, the largest effect sizes were between Urban and Rural responses on African-Americans. Some other differences emerged, and

Table 3. Ranked Means for Sampling Groups: Special Populations

Item	All (n=5,074)	RS (n=2,238)	CSD (n=2,293)	SRAC (n=543)
Underachievement	5.85 (1)	5.96 (1)	5.72 (1)	5.95 (1)
Gifted Females	5.42 (2)	5.50 (2)	5.35 (3)	5.40 (4)
Economically Disadvantaged	5.39 (3)	5.31 (3)	5.39 (2)	5.75 (2)
Dropouts & At-Risk	5.22 (4)	5.10 (4)	5.22 (4)	5.74 (3)
Caucasian-Americans	4.99 (5)	4.94 (5)	5.12 (5)	4.63 (8)
Learning Disabled	4.99 (5)	4.89 (6)	5.06 (6)	4.99 (5)
Behavior Disordered	4.85 (7)	4.75 (7)	4.94 (7)	4.86 (6)
African-Americans	4.13 (8)	3.76 (8)	4.34 (8)	4.70 (7)
English as a Second Language	3.78 (10)	3.63 (9)	3.78 (10)	4.40 (9)
Physically Handicapped	3.83 (9)	3.56 (10)	4.01 (9)	4.21 (10)
Hispanic-Americans	3.59 (11)	3.42 (11)	3.63 (11)	4.14 (11)
Asians & Pacific Islanders	3.47 (12)	3.28 (12)	3.55 (12)	3.92 (12)
Native-Americans	3.21 (13)	3.09 (13)	3.17 (13)	3.88 (13)

Note: Numbers in parentheses are the ranks for that group.
RS = Random Sample; CSD = Collaborative School Districts; SRAC = State Research Advisory Councils

are described in the technical report, however, these differences did not reach medium effect size levels. ANOVA, t test and effect size data for all comparisons dealing with special populations can be found in the technical report (Reid, 1991).

Research Needs Related to Program Components

The second major concern of this study was the program components upon which future research should focus. The results of this inquiry are presented in Table 4, and the effect sizes of program component comparisons can be found in Appendix F. The most important topics for research were Curriculum Development, Personal and Social Development, Identification, and Student Assessment. It can be noted here, once again, that there is a high degree of agreement among the sampling groups for the top four items listed in Table 4, and that this high level of agreement remained consistent for all of the eleven components being rated. Curriculum Development was overwhelmingly selected as the most important topic for needed research. As can be seen in Appendices G and H, Curriculum Development was rated as the highest research need when the data were analyzed by professional role and school setting. Few statistical differences existed among educators, with respect to research needs within Program Components. There also appears to be no apparent *practical* differences based on the effect size calculations. There were no significant differences among school settings with respect to research needs dealing with program components. Repeated measures ANOVA and effect size statistics for ratings by professional roles and school settings can be found in the technical report (Reid, 1991).

Data Synthesis

The quantitative data, analyzed by state, region, school setting, professional role, and sampling group, and the qualitative data from the State Research Advisory Council Worksheets, representing 32 states and one territory were synthesized. The National Research Center Advisory Council (NRCAC) met for two and one-half days in February, 1991. Following extensive review and discussion about all data resulting from the needs assessment study and the reports submitted by the states, the National Council prepared and prioritized a final list of general areas of recommended research. This list is displayed in Table 5. The list was presented to the Research Center Coordinating Committee, which then analyzed the list in terms of areas already being addressed in present studies being carried out by the NRC/GT. The Center staff then began the process of designing studies based on the recommendations of the state and national advisory groups. The Center also drew up a plan that represents a general summary of the recommendations of the Advisory Committees. This summary, entitled Organizational Framework for Research on the Gifted and Talented, is presented in Figure 3.

Table 4. Ranked Means for Sampling Groups: Program Components

Item	All (n=5,074)	RS (n=2,238)	CSD (n=2,293)	SRAC (n=543)
Curriculum Development	6.10 (1)	6.10 (1)	6.11 (1)	6.06 (1)
Personal & Social Development	5.54 (3)	5.57 (2)	5.58 (4)	5.40 (3)
Identification	5.54 (3)	5.51 (3)	5.59 (3)	5.37 (4)
Student Assessment	5.58 (2)	5.51 (3)	5.62 (2)	5.70 (2)
Instructional Grouping	5.28 (5)	5.19 (5)	5.34 (5)	5.37 (5)
Psychological Aspects	5.13 (6)	5.17 (6)	5.14 (6)	4.93 (7)
Patterns of Program Organization	4.95 (7)	5.02 (7)	4.90 (7)	4.89 (8)
Program Evaluation	4.86 (8)	4.79 (8)	4.90 (7)	5.03 (6)
Grade Level	4.55 (9)	4.50 (9)	4.63 (9)	4.41 (10)
Policy Development	4.33 (10)	4.46 (10)	4.19 (10)	4.44 (9)
Program Settings	3.77 (11)	3.65 (11)	3.89 (11)	3.82 (11)

Note: Numbers in parentheses are the ranks for that group.
RS = Random Sample; CSD = Collaborative School Districts; SRAC = State Research Advisory Council

Table 5. Recommendations for Research

Rank	Recommendations
1.	Impact of gifted programs on student outcomes (longitudinal)
2.	Regular curriculum modification
3.	Teacher training/staff development necessary for curriculum modification or development
4.	Grouping patterns and impact on learning outcomes
5.	Individual vs curriculum approaches to education
6.	Motivation
7.	Effectiveness of differentiated programs for economically disadvantaged, underchieving and other special populations
8A.	Self-efficacy
8B.	Cultural/community reinforcement
10.	Policy implications
11A.	Teachers as assessors
11B.	Grouping by special populations
13.	Program options in relation to student characteristics
14.	Process vs content
15.	Use of research
16.	Impact/understanding of gifted/talented "differences"
17.	Effects of grouping on all students when gifted are grouped
18.	Assumptions/stereotypes of underachievement
19.	Student characteristics associated with success
20.	Cooperative learning
21.	Relationship between community and program

Figure 3. Organizational Framework for Research on the Gifted and Talented

General Areas of Research (Recommended by National Research Center Advisory Council)	Economically Disadvantaged				Limited English Proficient				Underachievers				Females			
	Native-Americans	African-Americans	Hispanic-Americans	Etc. *	Native-Americans	African-Americans	Hispanic-Americans	Etc. *	Native-Americans	African-Americans	Hispanic-Americans	Etc. *	Native-Americans	African-Americans	Hispanic-Americans	Etc. *
Impact of Gifted Programs																
Regular Curriculum Modification																
Teacher Training & Staff Development																
Grouping Patterns																
etc.																

* Includes Asian-Americans, Caucasians, Behavior Disordered, Physically Handicapped, Dropouts & Potential Dropouts, and Learning Disabled

Implications for Further Research

Research Needs

Based on the results from the Research Needs Assessment Survey and the State Research and National Research Center Advisory Councils, two general categories of research have emerged that we believe should guide future studies in the area of education for the gifted and talented. The first category should examine the effectiveness of current programs, strategies, and practices. The second category should investigate the cognitive, affective, and motivational needs of students. Questions related to each category are presented below. They are not in the form of strict research questions; they represent initial thoughts related to the general categories and must be clarified by potential researchers.

Effectiveness of Current Programs, Strategies, and Practices

Within the first category of studies, the most important research need seems to be examining the effectiveness of current programs for gifted and talented students. Questions about programs, strategies, and practices might include:

- Are some programs, strategies, and practices more effective than others in producing desirable student outcomes?
- What is the long-term impact of programs for gifted and talented students?
- What are the characteristics of effective programs for gifted and talented students?

- Which types of programs are the most effective in developing long term levels of high academic achievement and creative productivity?
- What is the effectiveness of differentiated programs for economically disadvantaged students, underachieving students, or students with handicaps?
- What type of alternative assessment techniques will identify gifted and talented students who may not be identified through traditional assessment?
- What types of grouping practices are most effective in producing achievement gains?
- Are programs for the gifted more effective for students at certain grade levels (e.g., primary, elementary, middle school, high school)?
- What are the benefits of early intervention programs (i.e., preschool) for gifted and talented students?
- What types of intervention programs are most appropriate in nurturing students' abilities?
- What are the positive or negative effects of labeling a young student as gifted and talented?
- Are there effective methods of providing high quality programs and services to students who are not formally identified?
- Are programs with or without strict identification schemes more effective?

Another study or, more likely, series of studies should examine different kinds of curriculum for gifted and talented students. A good first step would be to examine the most promising curricular materials, strategies, and practices currently in existence, perhaps along the same lines as The University of Virginia study that is examining identification and evaluation instruments and designs (Renzulli, Archambault, Callahan, Frasier, & Sternberg, 1989).

- What strategies and practices are most appropriate in producing the curricular outcomes of gifted and talented programs?
- What kinds of programs would be most effective in teaching thinking skills to gifted students?
- What types of curricular activities are most effective in identifying and nurturing artistically gifted and talented students?
- What modifications need to be made in various content areas to make the curriculum appropriate for gifted and talented students?
- What types of preservice and inservice training are necessary for teachers who need to develop or modify curriculum for gifted and talented students?
- What types of programs in math and science challenge and interest gifted girls?
- Do gifted girls excel in math and science in programs for girls only?

Cognitive, Affective, and Motivational Factors

A second category of studies should examine the cognitive, affective, and motivational needs of gifted and talented students who have and who have not had access to special program opportunities. Perhaps more research should be conducted on the affective concerns and factors related to student motivation. Clearly, the importance given to Personal and Social Development in the Research Needs Assessment Survey would justify such research.

- What kind of programs are the most effective at producing positive cognitive, affective, and motivational outcomes?
- What kind of programs are the most effective in addressing personal and social issues?
- What is an appropriate definition of underachievement; what factors lead to underachievement?
- What intervention strategies are necessary to reverse patterns of underachievement?
- Do gifted and talented students have different levels or kinds of motivation?
- How can programs for the gifted encourage intrinsic motivation in bright students?
- What kinds of organizational or management techniques are the most successful in the development of intrinsic motivation in gifted students?
- Are there any affective differences between students enrolled in gifted and talented programs and those from schools without programs for the gifted and talented?
- Are gifted and talented students at-risk for dropping out of school if academic challenges are not readily available?
- Are there any positive or negative effects within the family as a result of a child being identified as gifted and talented?
- Do gifted and talented students understand and accept their "differences" due to their abilities?
- What are the attitudes of teachers, administrators, and peers toward students who have been identified as gifted and talented?
- Do special counseling programs for gifted and talented students influence their career options?
- How are attitudes toward self influenced by mentors?
- What types of cultural/community reinforcement are necessary to support and recognize the personal, social, and academic needs of gifted and talented students?

The questions related to the effectiveness of programs, strategies, and practices and cognitive, affective, and motivational development represent a small portion of suggestions from the three sources listed above. Literally hundreds of suggestions emerged from the needs assessment process and were distilled in the list of Recommendations for Research (see Table 5).

The Recommendations for Research have guided the development of studies for The National Research Center on the Gifted and Talented since 1991. Potential topics were generated and reviewed in terms of the target populations, school setting, grade levels, scope of research, duration of study, methodology, and relationship to the research recommendations. The following abstracts highlight the studies that are in process, and their relationship to the National Research Center Advisory Council (NRCAC) recommendations is presented in Table 6.

NRC/GT Research Agenda

A Study of Successful Classroom Practices
The University of Connecticut
Principal Investigators: Dr. Karen L. Westberg
Dr. Francis Archambault

Successful Classroom Practices provides a description of the conditions necessary to meet the needs of the gifted and talented and the strategies used to modify instructional approaches and regular curriculum materials in the classroom. The research questions include: (1) What factors contribute to classroom teachers' effective use of differentiated teaching strategies? (2) What environmental factors within the classroom and school contribute to effective use of differentiated teaching strategies? (3) How does the presence of a gifted education specialist affect the instructional strategies and materials used in the regular classroom? (4) How does the presence of a resource room or pull-out program affect the students' need for instructional and curricular differentiation in the regular classroom?

This research is an ethnographic study of a few classrooms identified as exemplary in their implementation of curriculum modification and curriculum differentiation. Purposive sampling identifies classrooms that are outstanding examples of this approach while also providing maximum variation in types of districts, such as a predominately white middle-class area, a multi-ethnic area, and if the data permit, an economically disadvantaged area. Participant observation is the major data-gathering technique for this study. Additionally, in-depth, open-ended, tape recorded interviews will be conducted with the classroom teachers observed, the principals of the schools, the curriculum coordinators, the teachers of the gifted and talented students, and possibly other interested parties, such as parents.

A Longitudinal Study of Successful Practices in Regular Classrooms
The University of Connecticut
Principal Investigators: Dr. Francis Archambault
Dr. Karen L. Westberg

The Longitudinal Study of Successful Practices examines the impact of a comprehensive educational program for high ability students in the regular classroom. In an experimental study, an educational program will be implemented in two treatment schools and a control group school in a district with a high concentration of economically disadvantaged students. In addition to collecting quantitative data to assess the program's impact on teachers and students, qualitative research techniques will provide rich descriptions of the various aspects of the educational plan. The treatment interventions and assessment instruments will be developed and field tested, and staff development experiences will be provided to

1 Classroom Practices
2 Longitudinal Study of Successful Classroom Practices
3 LD Gifted Case Studies
4 Cooperative Learning and Gifted
5 An Ethnographic Description of the High School Experience
6 Research-Based Assessment
7 Program Performance
8 Staff Development Model
9 Learning Outcomes
10 Identification and Evaluation Instruments & Designs
11 Qualitative Extension of Learning Outcomes
12 Preservice Teacher Preparation
13 Social and Emotional Adjustment
14 Theory-Based Approach to Identification, Teaching, and Evaluation
15 Motivation and Underachievement in Urban and Suburban Gifted Preadolescents

Table 6. Coverage of NRCAC Recommendations

		University of Connecticut Site					University of Georgia Site			University of Virginia Site					Yale University Site	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Impact of gifted programs on student outcomes (longitudinal)	X	X		X			X		X		X		X	X	
2	Regular curriculum modifications	X	X		X			X		X		X	X		X	
3	Teacher training/staff development necessary for curriculum modification or development	X	X					X	X			X	X		X	
4	Grouping patterns and impact on learning outcomes		X		X					X		X		X		X
5	Individual vs curriculum approaches to education		X					X		X		X	X			
6	Motivation		X	X				X		X		X		X	X	X
7	Effectiveness of differentiated program for economically disadvantaged, underachieving and other special populations	X	X			X		X		X		X			X	X
8A	Self efficacy		X	X		X		X		X		X		X	X	X
8B	Cultural/Community reinforcement					X		X				X		X		
10	Policy implications	X	X	X	X			X	X		X	X			X	
11A	Teachers as assessors	X	X					X			X	X	X			
11B	Grouping by special populations			X	X							X				
13	Program options in relation to student characteristics, settings, training, articulation	X	X	X				X		X		X	X		X	
14	Process vs content		X					X			X				X	
15	Use of research in assessment		X					X	X		X		X		X	X
16	Impact/understanding of gifted/talented "differences"			X		X	X	X	X	X			X	X	X	
17	Effects of grouping on all students when gifted are grouped	X	X		X					X						
18	Assumptions/stereotypes of underachievement			X		X				X				X		X
19	Student characteristics associated with success	X		X		X	X	X	X	X		X		X	X	X
20	Cooperative learning				X											X
21	Relationship between community and program					X									X	

teachers in the treatment schools. The educational program will include: (1) modifications of the regular curriculum to enable high ability students to move at an appropriate pace through basic skills content and learn advanced content, (2) instruction in basic and complex thinking skills, and (3) instruction and opportunities for application of thinking skills to both advanced content and advanced project work.

Case Studies of Gifted Students with Learning Disabilities Who Have Achieved
The University of Connecticut
Principal Investigators: Dr. Sally M. Reis
Dr. Joan McGuire

The factors that enable some gifted students with learning disabilities to succeed in an academic setting are investigated. The perceptions of the persons in this study may provide information that helps to identify this population and suggest specific educational interventions designed to meet the unique needs of this group. Specifically, we will investigate the following areas with college students or recent college graduates who were identified as having a learning disability:

The self-perceived strengths and weaknesses;
The specific educational intervention and assistance necessary to succeed in an academic environment;
The types of counseling strategies necessary to help realize their potential;
The collective view of this population regarding their treatment by others and others' perception of them;
Whether modifications were made in the instructional practices and educational programs designed for this population;
The positive and/or negative effects of labeling; and,
The specific nature of the learning disability.

Cooperative Learning and the Gifted
The University of Connecticut
Principal Investigators: Dr. David A. Kenny
Bryan W. Hallmark

The study is designed to assess the effects of cooperative learning methods on gifted students, and their non-gifted peers. Outcome measures will include achievement, attitudes towards self and school, and students' perceptions of others' ability, support, appreciation, leadership, likability and acceptance. Fourth grade students representing various ethnic groups will be included. The researchers will work with intact classes. Students will be assigned to four-person learning groups of gifted and non-gifted students. Three group compositions will be analyzed, a gifted homogeneous group, a non-gifted homogeneous group, and a heterogeneous group. All groups will work on two types of cooperative learning tasks: a group oriented, math task and a more traditional, cooperative learning task in science. For each of the tasks, students will participate in multiple, one-hour learning sessions in the regular classroom environment.

The following questions will be addressed: Do gifted students learn more than children who are non-gifted? Do gifted children assist the learning of the other children in the group? Does achievement differ in homogeneous versus heterogeneous grouping?

An Ethnographic Description of the High School Experiences of High Ability Students in an Urban Environment

The University of Connecticut

Principal Investigators: Dr. Sally M. Reis
Thomas P. Hébert

Gifted students from culturally diverse populations exist in large economically deprived urban environments, and they are now being included in the statistical reports of high school dropouts. To deal with this crisis situation, educators must address their needs through appropriate educational programs. The study will examine the cultural reality of high ability teenagers in an urban environment through participant observation and ethnographic interviews. The objective of the research will be an attempt to identify the following: cognitive and affective educational needs of gifted youth who are achieving and underachieving in an urban high school setting, the strategies for success employed by these students, and the educational and psychological support systems available to this population.

A Research-Based Assessment Plan for Assessing Giftedness in Economically Disadvantaged Students

The University of Georgia

Principal Investigator: Dr. Mary M. Frasier

The effectiveness of a research-based assessment plan in increasing the identification of gifted students from economically disadvantaged populations will be determined. To accomplish this objective, two models will be developed and piloted: (1) the Research-Based Assessment Plan and (2) a Staff Development Model. A secondary objective will be to conduct follow-ups on selected case study students from the first year study. Data from these follow-up case studies will be used to enrich the development of the identification and staff development models.

Content for these models will be based on the identification paradigm developed during the first year of The University of Georgia research study to describe giftedness within and across a variety of cultural groups. Additional input on content and procedure will be provided by a panel of expert members and collaborative researchers who participated in the Georgia Study; National Research Needs Assessment Survey results; and State Research and National Research Center Advisory Council members. Relevant literature on assessment and staff development will also be used to develop the models.

Gifted Program Performance of Students Identified Through the Research-Based Assessment Plan

The University of Georgia

Principal Investigators: Dr. Mary M. Frasier
Dr. Scott Hunsaker

Information will be provided that will help educators make the critical connection between assessment data and programming/curricular decisions. By investigating the gifted program performance of pilot study students identified using the Research-Based Assessment Plan (and comparing their performance with that of traditionally identified students), the study will help validate a theory based on the differential manifestations of gifted behaviors in different students and translate that theory into best-practice recommendations regarding program planning for these students. Both qualitative and quantitative data collected on the Research-Based Assessment Plan and traditionally identified students will be analyzed in order to evaluate achievement and attitudinal variables.

A National Field Test of the Staff Development Model and the Research-Based Assessment Plan
The University of Georgia
Principal Investigators: Dr. Mary M. Frasier
Dr. Scott Hunsaker

The validity in replicating the Staff Development Model and the Research-Based Assessment Plan will be investigated. Selected sites that reflect various types of communities (i.e., suburban, urban, rural) will implement the Staff Development Model and the Research-Based Assessment Plan with technical assistance but without direct supervision from personnel at The University of Georgia. These sites will reflect differences in designs such as: administrative organization, school sizes and type, differences in minority/majority population ratios, gifted program delivery models, school location, and personnel resources. However, sites will be selected that have similar philosophies and program goals. Data collected will be used to determine (1) the degree to which the Staff Development Model can be transferred, (2) the degree to which the Research-Based Assessment Plan can be transferred, and (3) the extent to which the Staff Development Model and the Research-Based Assessment Plan change the attitudes of students, teachers, and administrators toward the participation of target population students in gifted programs.

Extension of the Learning Outcomes Project
The University of Virginia
Principal Investigator: Dr. Marcia A. B. Delcourt

The Learning Outcomes Project was a multi-year study implemented during the first year of the NRC/GT, and it focused on the academic and affective outcomes of gifted and talented programs. The study was extended by adding a qualitative dimension to the analyses of outcomes in the four types of arrangements [(1) within classroom programs; (2) pull-out classroom programs; (3) separate classroom programs; and (4) special school programs] in the Learning Outcomes Project. More specifically, what characterizes a program that is identified as an "exemplary" model of a given program type? What are the influences of such exemplary programs on student achievement and effort? What distinguishes an exemplary representative model in terms of its ability to serve diverse populations of students? One district from each of the four types of programming arrangements will be selected for a thorough investigation. Observing classroom practices and receiving responses from state-level administrators, selected classroom teachers, parents and students about characteristics and overall effects of the program will serve as the sources of data.

Preservice Teacher Preparation in Meeting the Needs of the Gifted
The University of Virginia
Principal Investigators: Dr. Carol A. Tomlinson
Dr. Carolyn M. Callahan

There is evidence of need to improve teacher attitudes and practices regarding instruction of gifted learners and evidence that positive changes in teacher attitude and practice can be accomplished through interventions with preservice teachers. This study will examine the impact on preservice teachers' attitudes and practices of direct instruction regarding gifted learners, their needs, and strategies which exist for meeting those needs. In addition, one group of preservice teachers in the study will

also receive coaching in instructional differentiation by trained educators of the gifted during their student-teaching placements to determine the relative effectiveness of direct instruction alone in comparison with direct instruction coupled with coaching in the classroom. Further, cooperating teachers who work with preservice teachers will be studied to see if the interventions have an impact on their attitudes and/or instruction. Finally, a sub-sample of the preservice teachers studied will be followed into their first year of teaching to determine longevity of attitudinal and instructional impact of the interventions.

Social and Emotional Adjustment of the Gifted
The University of Virginia
Principal Investigators: Dr. Claudia J. Sowa
Dr. Kathleen M. May
Dr. Carolyn M. Callahan
Dr. Marcia A. B. Delcourt

Case studies of interpersonal, family, and school factors and the interactions between and among these factors will be the basis for identifying those elements which contribute to healthy development or maladjustment within the gifted population. Data from interviews with teachers, parents and family members and, of course, the children themselves will be used to build a model of resiliency in gifted children, to explicate dynamics of the gifted children and their families, and to identify hypotheses explaining differential adaptations made by gifted students to the environments in which they live.

Motivation and Underachievement in Urban and Suburban Gifted Preadolescents
Yale University
Principal Investigator: Dr. Pamela R. Clinkenbeard

What creates or inhibits a "gifted" level of performance, both in those who have been identified as gifted and in those who have not? This project will address two important factors in the gap between potential and performance: motivation and disadvantage. This project will describe in qualitative fashion the motivational patterns found in both suburban and economically disadvantaged urban classrooms of gifted preadolescents. Research on achievement motivation has been moving toward discovering and developing more methods for fostering learning goals, or task commitment: that is, a love of learning for its own sake and a desire to persevere on tasks of interest. The goal is equally important for those who have been overlooked in the identification process.

Expected knowledge from this study includes some answers to these questions: Do suburban classrooms for gifted preadolescents reveal different motivational patterns from those in urban classrooms? Are motivational patterns of students identified as gifted different in kind and/or degree from motivational patterns of other students? Does the experience of being labeled "gifted" cause a shift in motivation-related behavior?

Initial Research Studies

The Research Needs Assessment Survey set the agenda for research for 1991-95. During the first year of the NRC/GT, seven studies, including the needs assessment, were initiated based on an internal analysis of pertinent research topics that would guide future program strategies, practices, and policies. The final reports are in progress for studies on regular classroom practices, curriculum modifications, and investigations of giftedness. Three multi-year studies on investigations of identification and evaluation instruments, learning outcomes, and a theoretical approach to identification, teaching, and evaluation are still in progress. Abstracts of these studies are presented to illustrate the full complement of research being conducted.

Regular Classroom Practices with Gifted and Talented Students

The University of Connecticut

Principal Investigators: Dr. Francis Archambault
Dr. Karen L. Westberg

The nature of regular classroom practices used with gifted and talented students will be studied through an extensive national survey of 7,000 teachers and intensive observation of 46 classrooms. The national survey will provide information on the frequency with which certain instructional practices are used with traditionally identified gifted students, as well as less frequently identified students who are economically disadvantaged, have limited English proficiency, represent certain ethnic groups, or have particular handicapping conditions. The survey will also provide data on the extent to which practices used with gifted students differ from those used with other students located in the same classroom, and whether these differences relate to characteristics of the district, the classroom, or the teacher providing the instruction. The classroom observation portion of the study replicates some of the data acquired through the survey, thereby providing a validity check. It will also provide more detailed information on classroom dynamics, teacher/student interactions and teaching modifications.

A Theoretical Plan for Modifying the Regular Curriculum for Gifted and Talented Students

The University of Connecticut

Principal Investigator: Dr. Sally M. Reis

Since research indicates that the challenge level of textbooks is declining and that teachers often use whole-class instructional techniques, curriculum modification is necessary to meet the needs of gifted and talented students in regular classroom settings. One technique that has been designed to accomplish this goal is entitled curriculum compacting (Renzulli, Reis, & Smith, 1981) which involves elimination of skills students have already mastered and replacement of more challenging work that is often selected by the students. The research study concerning curriculum compacting uses three experimental groups of classroom teachers involved with different methods of training in the compacting technique (i.e., handbook, videotape, inservice training, simulations, and peer coaching) and a control group of classroom teachers that continue with their normal teaching practices. The effects of personal variables, professional variables and participation in training sessions on teachers' use of curriculum compacting will be examined. Other variables to be studied include achievement, attitude toward learning and subject area preference.

An Investigation of Giftedness in Economically Disadvantaged and Limited English Proficient Students
The University of Georgia
Principal Investigator: Dr. Mary M. Frasier

The University of Georgia will investigate distinguishing characteristics of Economically Disadvantaged (ED) and Limited English Proficient (LEP) students who display various potentials but who are not identified for gifted programs. The purposes of this study are to: (1) approach the identification of gifted economically disadvantaged and limited English proficient students from an intensive investigation of gifted behaviors within and across cultural groups; (2) examine giftedness in target students by analyzing the development of intellectual processes and functioning within the cultural context; and (3) focus on the strengths in children from diverse cultures in order to understand their gifts and talents.

Evaluation of the Effects of Programming Arrangements on Student Learning Outcomes
The University of Virginia
Principal Investigator: Dr. Marcia A. B. Delcourt

This study represents the first major national attempt to assess the effects of gifted and talented programs on learning outcomes for elementary students. Academic and affective learning will be evaluated within four popular types of program arrangements: within-classroom programs; pull-out classroom programs; separate classroom programs; and special school programs. The sample of students include those from a variety of geographic locations, as well as individuals representing minority and disadvantaged populations. Data collection sources include students, teachers, and parents, while results focus upon assessments of achievement, attitudes toward school, self-concept, intrinsic-extrinsic motivation, student activities, and behavioral adjustment.

Investigations Into Instruments and Designs Used in the Identification of Gifted Students and the Evaluation of Gifted Programs
The University of Virginia
Principal Investigator: Dr. Carolyn M. Callahan

The University of Virginia has established a National Repository for Instruments and Strategies used in the Identification of Gifted Students and the Evaluation of Gifted Programs. Existing instruments, systems and designs used in identification and evaluation were collected through a nationwide survey. In addition, a paradigm was created for evaluating the identification instruments in light of the wide variety of definitions and conceptions of giftedness. Non-traditional and product/performance instruments currently in use in evaluation of gifted programs will also be reviewed for their usefulness. Potentially useful locally-developed instruments will be examined through formal validation processes.

A Theory-Based Approach To Identification, Teaching, and Evaluation of the Gifted
Yale University
Principal Investigator: Dr. Robert J. Sternberg

The purpose of this five-year project is to study three major aspects of gifted education — identification, teaching, and student evaluation — within one integrated investigation. A common problem in the education of gifted students is inconsistency between the way these

students are identified and the instruction and assessment they receive. The focus of this project is to identify, instruct, and evaluate students based on Sternberg's Triarchic theory of intelligence. First, we are in the process of identifying students who are gifted in one of the three areas of the triarchic theory: analytic ability, creative-synthetic ability, or practical-contextual ability, as well as students who are balanced among these three kinds of giftedness. Second, we are developing different versions of an introductory course in psychological science that will be taught so as to emphasize analytic, creative, or practical skills. Third, evaluation will cover analytic, creative, and practical achievements. Equal numbers of students with each kind of giftedness will receive each kind of instruction, and all students will be evaluated on analytic, creative, and practical achievements. The project systematically manipulates identification, instruction, and evaluation of gifted students (as well as control students) in order to determine what would be gained by broadening our identification procedures, teaching in ways that are or are not tailored to gifted students' particular patterns of abilities, and assessing the students' performance in ways that either do or do not address their particular strengths.

Translating Research Findings Into Practice

Determining the effectiveness of programs for the gifted and talented and disseminating the information to decision makers are important tasks. More effort needs to be made in the dissemination of research results, as indicated in the earlier section of this report entitled "Lessons From the Past." Pullen (1958) believed that research should be organized and interpreted for use in practical programs. Perhaps research needs to be packaged and presented in different ways. Researchers generally submit their findings to educational research journals. A more appropriate approach would be to target general educational magazines that have teachers and other practitioners as primary audiences.

In an effort to minimize the gap between theory and research on one hand, and the improvement of educational practices on the other, the NRC/GT has developed a dissemination model to maximize the impact of research (see Figure 4). The model is based on the work of Garvey and Griffith, 1967, 1972; Glaser and Taylor, 1973; and Halpert, 1966. It includes four considerations: audience targeting, frequency of exposure, mode of communication, and coordination and spreadability. All research should be directed toward specific audiences (e.g., state and local board members, teachers, parents, general public) from the earliest of design stages. Similar presentations of the findings can be recast for different audiences in different formats to ensure that "the message" and "the package" are most appropriate. These information sources and information formats need to be repeated periodically to keep the findings prominent in discussions of all policies related to gifted and talented education. Essentially, the goal of dissemination is to place carefully selected and highly relevant information about the needs of gifted and talented students and the variety of identification and programming options for meeting these needs into the hands of local, state, and national decision makers.

Figure 4. The National Research Center on the Gifted and Talented Dissemination Model

Various oral, written, and visual information formats are used by the NRC/GT to achieve a well-balanced dissemination model, including abstracts, briefing sheets, executive summaries, technical reports, slides, transparencies, and videotapes. These information formats help to achieve the maximum impact in the shortest amount of time by eliciting the support of advocates and community opinion leaders to be the messengers. They, in turn, spread to message to their constituents which further enlarges the number of people or "the audiences."

Summary

In "Lessons From the Past" several problems were discussed that limited the extent and impact of research. The research being conducted by The National Research Center on the Gifted and Talented and the future research that may be influenced by the recommendations from the needs assessment process will hopefully address these problems. As new research studies are planned by those with a special interest in improving the educational opportunities for gifted and talented students, we should consider designing intervention studies and studies grounded in specific theories and models that guide identification and programming practices. We should also consider different types of research designs that are responsive to critical questions and issues in a school environment. The questions raised and the designs selected should result in data on effective strategies, practices, and policies in various types of program settings.

The staff of The National Research Center on the Gifted and Talented has started the agenda for research that will have an impact on the future programming for gifted and talented students through the year 2000. We hope that this monograph will also influence the direction for research by others who share similar interests.

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Appendices

Appendix A. State Research Advisory Council Worksheet

TOPIC:	Special Populations
POPULATION:	Underachieving Gifted Students
NEED/ RATIONALE:	Underachieving gifted students can be found in all cultural groups, as well as all socioeconomic levels.
EXTEND OF NEED:	More explicit research is needed to verify the widely held belief that there are many underachieving gifted students.
SPECIFIC QUESTIONS/ OBJECTIVE:	*Objective:* Define the term underachieving. *Questions:* What factors other than academic achievement, as indicated in objective test scores, should be used in identifying underachievement? What instructional variables impact underachievement? (Examples: instructional strategies, grouping, teacher expectations)
IMPACT ON UNDERSERVED POPULATIONS:	Knowledge of factors causing underachievement in gifted students can lead to implementation of more appropriate services to all gifted students. This would help recapture students currently at-risk.

Appendix B. Research Needs Assessment Survey

THE NATIONAL RESEARCH CENTER ON THE GIFTED AND TALENTED

NRC G/T

RESEARCH NEEDS ASSESSMENT SURVEY

Joseph S. Renzulli, Brian D. Reid, & Scott W. Brown

This survey is intended to determine research needs in gifted education. Please think of research as any investigation that uses one or more data gathering methods and that is intended to establish facts, principles, policies, or procedures relating to the education of gifted and talented students. **For the purposes of this survey, gifted and talented students are defined as highly able or potentially able students, even if they have not been formally identified as gifted or enrolled in a special program for gifted students.** What are the most important questions that need to be answered about these students? The survey is designed to obtain your perspective about such questions. When answering a question, always consider each category in terms of RESEARCH NEEDS rather than its importance in program development, funding requirements, or other ways in which the categories may be viewed.

In each part, you are asked to base your responses on the perspective of your particular situation. That is, we are interested in what kinds of research are needed based on your role and type of community in which you work. It is important that you **not** try to look at these issues based on a national perspective. This survey is being distributed to all parts of the country and every kind of setting to ensure that all groups are represented in the survey. The results of the survey will assist the National Research Center in determining both a state-by-state listing of research priorities as well as a national listing of priorities.

Power Rating: The rating process will be *most* effective if you make discriminating choices in each of the items included in this survey. In other words, try to avoid assigning high ratings to every item, because such an approach will prevent us from examining a *range* of priorities. Every item cannot be the top priority. Please be selective in making your choices!

Directions are listed at the top of each page. Please read all directions carefully before you attempt to respond. The survey begins on the bottom of this page. Listed on the following pages are questions regarding important dimensions of research on gifted and talented students.

PART 1 : Special Populations

Please rate the need for research for each of the special populations listed below by **circling** the appropriate number 1 (Unimportant) to 7 (Highly Important) based on your local school perspective. *How important is research on each of the following groups?*

1 = Unimportant ----7 = Highly Important

Native-Americans	1 2 3 4 5 6 7	Gifted Females	1 2 3 4 5 6 7
African-Americans	1 2 3 4 5 6 7	Bilingual/ Bicultural/ ESL	1 2 3 4 5 6 7
Hispanic-Americans	1 2 3 4 5 6 7	Underachieving	1 2 3 4 5 6 7
Caucasian-Americans	1 2 3 4 5 6 7	Physically Handicapped	1 2 3 4 5 6 7
Asian-Americans/Pacific Islanders	1 2 3 4 5 6 7	Dropouts & At-Risk	1 2 3 4 5 6 7
Economically Disadvantaged	1 2 3 4 5 6 7	Learning Disabled	1 2 3 4 5 6 7
Behavior Disordered	1 2 3 4 5 6 7		

PART 2: Program Components

The second part of this survey asks you to provide two kinds of ratings.

1. **First**, please read all 11 major categories listed in **bold print** before you begin.
2. **Second**, rate the major categories listed in **bold print** from unimportant (1) to highly important (7).
3. **Next**, rate the subcategories from unimportant (1) to highly important (7).
4. **Finally**, for the last item, circle the one category that you believe is the most important.

1 = Unimportant -----7 = Highly Important

1. PATTERNS OF PROGRAM ORGANIZATION - 1 2 3 4 5 6 7 *Research in this category would focus on administrative arrangements for gifted programs.*

Pullout/ Resource Room	1 2 3 4 5 6 7	College Courses	1 2 3 4 5 6 7
Full Time Classes	1 2 3 4 5 6 7	Consultation	1 2 3 4 5 6 7
After School Programs	1 2 3 4 5 6 7	Saturday Classes	1 2 3 4 5 6 7
Magnet/Special Schools	1 2 3 4 5 6 7	Acceleration*	1 2 3 4 5 6 7
Mentorships/Internships	1 2 3 4 5 6 7		

*Any organized pattern for more rapid advancement through the grade levels

2. GRADE LEVEL - 1 2 3 4 5 6 7 *Research in this category would focus on different age groups and the kinds of questions that relate to age and grade level.*

Preschool	1 2 3 4 5 6 7	Middle/Junior High	1 2 3 4 5 6 7
Primary	1 2 3 4 5 6 7	Senior High	1 2 3 4 5 6 7
Elementary	1 2 3 4 5 6 7	University & College	1 2 3 4 5 6 7

3. PROGRAM SETTINGS - 1 2 3 4 5 6 7 *Research in this category would focus on various kinds of program settings.*

Private Schools	1 2 3 4 5 6 7	Vocational/Technical	1 2 3 4 5 6 7
Urban	1 2 3 4 5 6 7	Summer Schools	1 2 3 4 5 6 7
Rural	1 2 3 4 5 6 7	Residential Schools	1 2 3 4 5 6 7
Suburban	1 2 3 4 5 6 7		

4. PERSONAL & SOCIAL DEVELOPMENT - 1 2 3 4 5 6 7 *Research in this category would focus on the affective development and adjustment of gifted students.*

Social Adjustment	1 2 3 4 5 6 7	Peer Relations	1 2 3 4 5 6 7
Emotional Adjustment	1 2 3 4 5 6 7	Family Relations	1 2 3 4 5 6 7
Guidance & Counseling	1 2 3 4 5 6 7	Underachievement	1 2 3 4 5 6 7

5. PROGRAM EVALUATION - 1 2 3 4 5 6 7 *Research in this category would focus on the effectiveness of evaluation methods.*

Evaluation Designs	1 2 3 4 5 6 7	Data Analysis	1 2 3 4 5 6 7
Instruments	1 2 3 4 5 6 7	Reporting the Results	1 2 3 4 5 6 7

Appendix B. Research Needs Assessment Survey (Continued)

1=Unimportant -----7 = Highly Important

6. INSTRUCTIONAL GROUPING - 1 2 3 4 5 6 7 *Research in this category would focus on the effect of instructional grouping arrangements for gifted students.*

By Age	1	2	3	4	5	6	7	By Interest	1	2	3	4	5	6	7
By Ability	1	2	3	4	5	6	7	Heterogeneous	1	2	3	4	5	6	7

7. STUDENT ASSESSMENT - 1 2 3 4 5 6 7 *Research in this category would focus on methods for assessing students' demonstrated abilities and potential abilities.*

Intelligence	1	2	3	4	5	6	7	Product Assessment	1	2	3	4	5	6	7
Achievement	1	2	3	4	5	6	7	Process Skills	1	2	3	4	5	6	7
Creativity	1	2	3	4	5	6	7	Peer Rating	1	2	3	4	5	6	7
Motivation	1	2	3	4	5	6	7	Teacher Ratings of Students	1	2	3	4	5	6	7

8. POLICY DEVELOPMENT - 1 2 3 4 5 6 7 *Research in this category would focus on the impact of regulations and policies that affect programs for gifted students.*

Federal Policy and Regulations	1	2	3	4	5	6	7	Legal Issues	1	2	3	4	5	6	7
State Policy and Regulations	1	2	3	4	5	6	7	Professional Standards	1	2	3	4	5	6	7
Local Policy and Regulations	1	2	3	4	5	6	7								

9. PSYCHOLOGICAL ASPECTS - 1 2 3 4 5 6 7 *Research in this category would focus on underlying psychological aspects of giftedness.*

Cognitive	1	2	3	4	5	6	7	Motivation	1	2	3	4	5	6	7
Affective	1	2	3	4	5	6	7	Creativity	1	2	3	4	5	6	7

10. IDENTIFICATION - 1 2 3 4 5 6 7 *Research in this category would focus on methods of determining the eligibility of students for various kinds of gifted programs.*

General Identification Systems	1	2	3	4	5	6	7	Identification Instruments	1	2	3	4	5	6	7
Effectiveness of Identification	1	2	3	4	5	6	7	Academic Potential	1	2	3	4	5	6	7
Potential in the Arts	1	2	3	4	5	6	7	Vocational/Technical Potential	1	2	3	4	5	6	7

11. CURRICULUM DEVELOPMENT - 1 2 3 4 5 6 7 *Research in this category would focus on the effectiveness of curriculum for gifted students.*

Content /Subject Areas (Math/Reading, etc.)	1	2	3	4	5	6	7	Futuristics	1	2	3	4	5	6	7
								Research Skills	1	2	3	4	5	6	7
Creativity	1	2	3	4	5	6	7	Thinking Skills	1	2	3	4	5	6	7
Arts	1	2	3	4	5	6	7	Invention	1	2	3	4	5	6	7
Leadership	1	2	3	4	5	6	7	Trends	1	2	3	4	5	6	7

12. Go back through the major categories and circle the category that is most important to you.

Page 3

PART 3: Demographic Data

The third and final step is to provide information that will assist us in analyzing the previous data. This information will also help us determine the representativeness of the various groups completing this survey. All participants should fill out the top section and then complete the boxed section that applies.

STATE IN WHICH YOU ARE CURRENTLY EMPLOYED (or your child attends school) _____

SCHOOL DISTRICT SIZE: (approximate number of pupils) ____(0-999) ____(1000-2499) ____(2500-9999) ____(10,000-20,000) ____(more than 20,000)

SCHOOL SETTING: ((What is the best way to describe your school?) ____Urban ____Suburban ____Rural

YOUR SEX: (check one) ____Male ____Female

YOUR EDUCATION: ____High School ____BA/BS ____MA/MS ____Specialist ____Ph.D./Ed.D ____Other

YOUR ETHNIC BACKGROUND: ____Hispanic-American ____African-American ____Native-American ____Caucasian-American ____Asian-American/Pacific Islander ____Other

Please complete the ONE box below that best describes your current role.

EDUCATOR: Please check the ONE area below that best describes your PRESENT position

____Teacher of the gifted
____Regular classroom teacher
____College or university faculty or staff
____Building principal
____Central office administrator
____State department of education
____Regional service center
____Gifted education program coordinator (Half-time or more)
____Other (Specify)_____

TOTAL YEARS IN ALL EDUCATIONAL SETTINGS _____

TRAINING IN GIFTED EDUCATION: Please check the ONE level below that represents your highest level of training in gifted education

____No training in gifted education
____Workshop in gifted education
____National or state conference
____Courses in gifted education
____Degree in gifted education

PROFESSIONAL LEVEL Please indicate the grade level(s) of your student(s)

____Primary ____Intermediate ____Middle/Junior High
____Senior High ____Undergraduate ____Graduate

CURRENT SECTOR: ____Public School
____Private/Independent School

PARENT OF GIFTED STUDENT(S): Please circle the sex of each of your children in school and then write his/her age in the blank

1 Male Female Age _____
2 Male Female Age _____
3 Male Female Age _____
4 Male Female Age _____
5 Male Female Age _____

DOES YOUR CHILD'S SCHOOL HAVE A GIFTED PROGRAM ? (Circle one)
Yes No Don't Know

IF YES, WHAT GRADE LEVELS DOES IT INCLUDE ? _____

BUSINESS PERSON, POLICY MAKER, AND PROFESSIONAL ORGANIZATION LEADER:

NAME OF ORGANIZATION: _____

KIND OF ORGANIZATION:
____Educational Professional Organization
____Business Organization
____Communication/Media Organization
____Board of Education

SCOPE OF ORGANIZATION:
____Local ____National
____Statewide ____International
____Regional

THANK YOU VERY MUCH FOR YOUR HELP !

PLEASE RETURN TO: Joseph S. Renzulli: NRC/GT: The University of Connecticut, Box U-7, Storrs, CT 06269-2007

Page 4

Appendix C. Effect Sizes of Special Population Items by Sampling Group

Item	RS/CSD	RS/SRAC	CSD/SRAC
Native-Americans	0.04	0.36*	0.33*
African-Americans	0.27*	0.43*	0.17*
Hispanic-Americans	0.10	0.35*	0.25*
Caucasian-Americans	0.09	0.16	0.26*
Asians & Pacific Islanders	0.13*	0.32*	0.19*
Economically Disadvantaged	0.05	0.22*	0.22*
Behavior Disordered	0.11*	0.06	0.05
Gifted Females	0.09	0.06	0.03
English as a Second Language	0.07	0.38*	0.31*
Underachievement	0.18*	0.01	0.16*
Physically Handicapped	0.25*	0.36*	0.12
Dropouts & At-Risk	0.07	0.36	0.30*
Learning Disabled	0.10	0.06	0.05
Average Effect Size	0.12	0.24	0.19

Note: Items marked with an asterisk were significantly different at $p<.001$.
Cohen (1988) indicated that effect sizes of .2 are small, .5 are medium, and .8 are large.
RS = Random Sample; CSD = Collaborative School Districts; SRAC = State Research Advisory Council

Appendix D. Ranked Means for Special Populations by Professional Role

Item	All (n=5,074)	TG (n=1,955)	CT (n=991)	BP (n=326)	COA (n=281)	PC (n=435)
Underachievement	5.85 (1)	5.98 (1)	5.58 (1)	5.84 (1)	5.87 (1)	6.09 (1)
Gifted Females	5.42 (2)	5.53 (2)	5.20 (3)	5.27 (5)	5.36 (4)	5.63 (2)
Economically Disadvantaged	5.39 (3)	5.31 (3)	5.21 (2)	5.67 (2)	5.71 (2)	5.46 (3)
Dropouts & At-Risk	5.22 (4)	5.06 (4)	5.13 (4)	5.30 (3)	5.61 (3)	5.40 (4)
Caucasian-Americans	4.99 (5)	4.91 (5)	5.10 (5)	5.30 (3)	5.01 (7)	5.04 (6)
Learning Disabled	4.99 (5)	4.88 (6)	4.94 (7)	5.16 (6)	5.19 (5)	5.07 (5)
Behavior Disordered	4.85 (7)	4.73 (7)	4.95 (6)	5.13 (7)	5.02 (6)	4.78 (7)
African-Americans	4.13 (8)	4.07 (8)	4.00 (8)	4.49 (8)	4.61 (8)	3.88 (8)
English as a Second Language	3.78 (10)	3.74 (9)	3.60 (10)	3.83 (10)	4.18 (10)	3.62 (10)
Physically Handicapped	3.83 (9)	3.60 (10)	3.90 (9)	3.89 (9)	4.26 (9)	3.70 (9)
Hispanic-Americans	3.59 (11)	3.51 (11)	3.47 (11)	3.72 (11)	4.09 (11)	3.50 (11)
Asians & Pacific Islanders	3.47 (12)	3.37 (12)	3.40 (12)	3.62 (12)	3.82 (12)	3.45 (12)
Native-Americans	3.21 (13)	3.08 (13)	3.16 (13)	3.19 (13)	3.46 (13)	3.08 (13)

Note: Numbers in parentheses are the ranks for that group.
The total for Professional Role does not equal 5,074 due to missing data.
TG = Teachers of the Gifted; CT = Classroom Teachers; BP = Building Principals;
COA = Central Office Administrators; PC = Program Coordinators

Appendix E. Ranked Means for School Setting Groups: Special Populations

Item	All (n=5,074)	Urban (n=845)	Suburban (n=2,186)	Rural (n=1,791)
Underachievement	5.85 (1)	5.89 (1)	5.86 (1)	5.85 (1)
Gifted Females	5.42 (2)	5.40 (3)	5.46 (2)	5.41 (3)
Economically Disadvantaged	5.39 (3)	5.87 (2)	4.98 (4)	5.62 (2)
Dropouts & At-Risk	5.22 (4)	5.39 (4)	5.01 (3)	5.35 (4)
Caucasian-Americans	4.99 (5)	4.71 (8)	4.98 (4)	5.18 (5)
Learning Disabled	4.99 (5)	4.92 (6)	4.98 (4)	4.99 (6)
Behavior Disordered	4.85 (7)	4.89 (7)	4.82 (7)	4.88 (7)
African-Americans	4.13 (8)	5.16 (5)	4.21 (8)	3.46 (9)
English as a Second Language	3.78 (10)	4.25 (10)	3.92 (9)	3.33 (10)
Physically Handicapped	3.83 (9)	3.98 (11)	3.84 (10)	3.74 (8)
Hispanic-Americans	3.59 (11)	4.35 (9)	3.62 (12)	3.13 (11)
Asians & Pacific Islanders	3.47 (12)	3.90 (12)	3.74 (11)	2.90 (13)
Native-Americans	3.21 (13)	3.71 (13)	3.07 (13)	3.09 (12)

Note: Numbers in parentheses are the ranks for that group.
The total for School Setting Group does not equal 5,074 due to missing data.

Appendix F. Effect Sizes of Program Components Items by Sampling Group

Item	RS/CSD	RS/SRAC	CSD/SRAC
Patterns of Program Organization	0.07	0.08	0.01
Grade Level	0.08	0.06	0.13
Program Settings	0.13*	0.09	0.04
Personal & Social Development	0.01	0.11	0.12
Program Evaluation	0.07	0.15	0.08
Instructional Grouping	0.01	0.11	0.01
Student Assessment	0.08	0.14	0.06
Policy Development	0.16*	0.01	0.15
Psychological Aspects	0.02	0.15	0.14
Identification	0.06	0.09	0.15
Curriculum Development	0.01	0.03	0.04
Average Effect Size	0.07	0.09	0.09

Note: Items marked with an asterisk were significantly different at $p<.001$.
Cohen (1988) indicated that effect sizes of .2 are small, .5 are medium, and .8 are large.
RS = Random Sample; CSD = Collaborative School Districts; SRAC = State Research Advisory Council

Appendix G. Ranked Means for Program Components by Professional Role

Item	All (n=5,074)	TG (n=1,955)	CT (n=991)	BP (n=326)	COA (n=281)	PC (n=435)
Curriculum Development	6.10 (1)	6.14 (1)	6.04 (1)	5.99 (1)	6.11 (1)	6.21 (1)
Personal & Social Development	5.54 (3)	5.62 (2)	5.43 (4)	5.52 (5)	5.49 (4)	5.52 (4)
Identification	5.54 (3)	5.59 (3)	5.59 (3)	5.57 (4)	5.77 (3)	5.37 (5)
Student Assessment	5.58 (2)	5.54 (4)	5.60 (2)	5.67 (2)	5.83 (2)	5.54 (3)
Instructional Grouping	5.28 (5)	5.16 (6)	5.21 (5)	5.63 (3)	5.47 (5)	5.57 (2)
Psychological Aspects	5.13 (6)	5.20 (5)	5.05 (6)	5.13 (7)	5.01 (8)	5.12 (6)
Patterns of Program Organization	4.95 (7)	4.97 (7)	4.71 (8)	5.23 (6)	5.31 (7)	5.05 (8)
Program Evaluation	4.86 (8)	4.74 (8)	4.79 (7)	5.01 (8)	5.46 (6)	5.12 (6)
Grade Level	4.55 (9)	4.49 (9)	4.61 (9)	4.60 (9)	4.55 (9)	4.48 (10)
Policy Development	4.33 (10)	4.44 (10)	4.05 (10)	4.12 (10)	4.39 (10)	4.51 (9)
Program Settings	3.77 (11)	3.65 (11)	3.89 (11)	3.98 (11)	4.01 (11)	3.55 (11)

Note: Numbers in parentheses are the ranks for that group.
TG = Teachers of the Gifted; CT = Classroom Teachers; BP = Building Principals;
COA = Cental Office Administrators; PC = Program Coordinators
Total for Professional Role does not equal 5,074 because some groups are not listed in this table.

Appendix H. Ranked Means for School Setting Groups: Program Components

Item	All (n=5,074)	Urban (n=845)	Suburban (n=2,186)	Rural (n=1,791)
Curriculum Development	6.10 (1)	6.13 (1)	6.06 (1)	6.14 (1)
Personal & Social Development	5.54 (3)	5.53 (4)	5.60 (2)	5.53 (3)
Identification	5.54 (3)	5.63 (3)	5.52 (4)	5.54 (2)
Student Assessment	5.58 (2)	5.69 (2)	5.58 (3)	5.53 (3)
Instructional Grouping	5.28 (5)	5.24 (5)	5.33 (5)	5.25 (5)
Psychological Aspects	5.13 (6)	5.13 (6)	5.19 (6)	5.08 (6)
Patterns of Program Organization	4.95 (7)	4.93 (7)	4.97 (7)	4.96 (7)
Program Evaluation	4.86 (8)	4.86 (8)	4.86 (8)	4.85 (8)
Grade Level	4.55 (9)	4.54 (9)	4.52 (9)	4.61 (9)
Policy Development	4.33 (10)	4.46 (10)	4.28 (10)	4.33 (10)
Program Settings	3.77 (11)	3.76 (11)	3.62 (11)	3.97 (11)

Note: Numbers in parentheses are the ranks for that group.
Total for Program Components does not equal 5,074 due to missing data.

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